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(54) Title: METHODS, PEPTIDES AND BIOSENSORS USEFUL FOR DETECTING A BROAD SPECTRUM OF BACTERIA

(57) Abstract: Described herein are methods of detecting a wound infection and for detecting the presence or absence of bacteria, for example, wound bacteria in a sample, by contacting a sample with a peptide substrate derived from the modification of the reactive site loop (RSL) domain of the  $\alpha$  1- proteinase inhibitor. In the current invention, we have demonstrated that these peptide substrates without the alpha 1 protein can be efficiently used as peptide substrates. The modification or the absence of modification of this peptide substrate by the enzyme produced and/or secreted by the bacteria, can serve as an indicator for the presence or absence of the bacteria in the sample. The present invention also features a biosensor for detecting the presence or absence of bacteria in a sample.